Remarks

Claims 1-64 are currently pending in the application.

Restriction has been required under 35 U.S.C. § 121 to one of the following groups:

Group I, claims 1-43, drawn to methods of predicting antisense activity, allegedly classified in class 702, subclass 20;

Group II, claims 44-64, drawn to an artificial neural network, allegedly classified in class 702, subclass 19.

For the purpose of providing a complete response to the present Office Action, Applicants elect Group I, claims 1-43. Applicants respectfully traverse the restriction requirement for the reasons set out below.

Under MPEP § 803 there are two criteria that must both be met before a restriction requirement is proper: (1) The inventions must be independent or distinct as claimed, and (2) there must be a serious burden on the examiner if restriction is not required. The initial burden is on the examiner to provide reasons with respect to both of these requirements. MPEP § 803. The various types of distinct, or related inventions, as they are sometimes called, must fit within one of the categories described in MPEP §§

806.05(a)-(i). Where the related inventions as claimed are shown to be distinct under the criteria of MPEP §§ 806.05(c)-(i), the Examiner, to establish reasons for insisting on restriction, must show by appropriate explanation one of the following: (a) separate classification, (b) separate status in the art, or (c) a different field of search. MPEP § 808.02. "Where, however, the classification is the same and the field of search is the same and there is no clear indication of separate future classification and field of search, no reasons exist for dividing among related inventions." MPEP § 808.02. For purposes of the initial requirement, a serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation separate classification, separate status in the art, or a different field of search as defined in MPEP § 808.02. MPEP § 803. However, "[i]f the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to distinct or independent inventions.". MPEP § 803.

Applicants respectfully submit that there would be no serious burden on the examiner to examine the present application, regardless of whether or not a *prima facie* case of serious burden has been shown. Applicants therefore respectfully request that the

restriction requirement be withdrawn and the application be examined as a unitary invention.

Applicants have also been required to make species elections. For the purpose of filing a complete response and without admitting the appropriateness of any species election requirement, the following species elections are submitted:

First species election: Applicants elect the following species of sequence data, as set forth in claims 2, 23, and 45: (A) sequence data compiled from published result reports obtained from using at least ten oligonucleotides and at least one mismatch/scrambled control oligonucleotide.

Second species election: Applicants elect the following species of input layer composition, as set forth in claims 3-5, 24-26, and 46-48: (D) an input layer comprising only sequence motifs exhibiting a statistical correlation in their presence to oligonucleotide activity.

Third species election: Applicants elect the following species of hidden layer composition, as set forth in claims 8, 9, 29, 30, 51, and 52: (J) at least one hidden layer comprising about 4 to about 16 nodes.

Fourth species election: Applicants elect the following species of output layer composition, as set forth in claims 10, 31, and 53: (M) an output layer that comprises one output node.

Fifth species election: Applicants elect the following species of methods for training the artificial neural network, as set forth in claims 11, 12, 32, 33, 54, and 55: (P) use of a back-propagation algorithm without a momentum term.

Sixth species election: Applicants elect the following species of reporting and assessing predicted antisense activity, as set forth in claims 13-16, 34-37, and 56-59: (R) by ROC analysis.

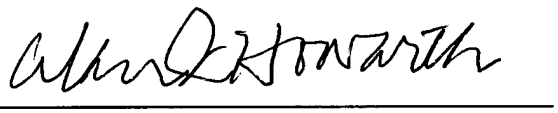
Seventh species election: Applicants elect the following species of sequence motif count, as set forth in claims 17, 38, and 60: (W) counts are entered as normalized data.

Eighth species election: Applicants elect the following species of discriminating antisense activity, as set forth in claims 18, 19, 39, 40, 61, and 62: (Z) oligonucleotide antisense activity data are entered using a binary threshold function with a cutoff in the range of about 0.01-0.50.

Ninth species election: Applicants elect the following species of combining predicted antisense activity of the neural network, as set forth in claims 20, 21, 41, 42, 63, and 64: (BB) a combination with a predicted antisense activity of at least one other artificial neural network.

DATED this 4th day of March, 2005.

Respectfully submitted,



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